DOCUMENT RESUME

ED 253 159 HE 018 065

AUTHOR Evancoe, Donna Clark
TITLE Selecting and Implementing the Right Computer System.
PUB DATE Jan 85
NOTE 7p.
PUB TYPE Guides - Non-Classroom Use (055) -- Journal Articles (080)
JOURNAL CIT Business Officer; p30-34 Jan 1985

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Administrator Responsibility; Business; College Administration; Computer Oriented Programs; *Computers; Computer Software; Data Processing; Decision Making; Higher Education; *Management Information Systems; *Needs Assessment; *Program Implementation; *Purchasing; *Selection

ABSTRACT

Steps that should be followed in choosing and implementing an administrative computer system are discussed. Three stages are involved: institutional assessment, system selection, and implementation. The first step is to define the current status of the data processing systems and the management information systems at the institutions. Future administrative computing needs must also be defined. Broad-based involvement during the needs assessment process will promote support for eventual decisions on systems acquisition. The next step is to define the general hardware and software options. Other institutions and businesses might be visited to observe their computer system operations. Setting objectives for improving administrative computing should also be completed during the assessment phase. Steps in the system selection phase are: define the evaluation criteria, narrow the field of possible vendors, arrange vendor demonstrations, contact current customers, visit the corporate offices of each vendor, and make a contract with the new vendor. During the implementation stage, it is important to assign responsibilities, plan the implementation schedule, design the training program, make data conversions, create procedures manuals, and establish a users' group. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED253159

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

NAGUBO

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Selecting and Implementing the Right Computer System

by DONNA CLARK EVANCOE

Institutions that are planning to introduce, improve, or replace an administrative computer system are faced today with choices between, for example, a mainframe and a micro, a stand-alone system and a networked version, packaged software and home-grown products, and national vendors and local ones. Because there are so many affordable and technically feasible options, it is extremely important that institutions take a deliberate and systematic approach to selection and installation of a system.

Technological advances have brought us to the point where administrative computing decisions should no longer be made on the basis of hardware alone. In fact, hardware is really of secondary importance. In administrative computing today, decisions should be made primarily on the basis of software. Forward-looking institutions are analyzing their administrative functions and seeking total systems—software and hardware—to help in carrying out the functions efficiently and effectively.

The purpose of this article is to identify the major steps that each institution of higher education should take to ensure the acquisition and successful installation of the administrative computer system that best meets the unique needs of the campus. The computer system implementation process consists of three phases:

- Institutional assessment;
- System selection;
- Implementation.

This article explores each of these three phases by suggesting some of the procedures, activities, and issues that are part of the search for improved administrative computing.

Donna Clark Evancoe is coordinator of educational development for Datatel Minicomputer Company.

Institutional Assessment

Document Current Status. The first step in institutional assessment is to define the current status of the data processing systems (DP) and the management information systems (MIS) in your institution. This survey must be comprehensive and must cover every area of administrative operations. Among the questions to be answered are:

- What computer hardware is currently being used (or not used) in administrative offices? This includes mainframes, timesharing, minicomputers, microcomputers, and word processing equipment.
- What administrative operations are currently supported with

this hardware? What is the source of the software? Was it written by a user, DP staff, or a consultant? Was it purchased externally or provided by the vendor?

○ What management information is currently being produced by these systems? Who uses it and what is it used for? Is the information appropriate for decision-making needs?

Define Future Needs. After the current status is documented, future administrative computing needs must be defined. This process should involve, in some way, representatives from every administrative area as well as the president and vice presidents. Broad-based involvement during the needs-assessment process will make it easier to achieve institution-wide support for eventual decisions on system acquisition. Among the questions to consider at this stage are:

○ Which administrative operations should be computerized?

○ What data are needed by office personnel to perform their administrative tasks and by management to carry out planning and decision making?

○ In what areas might your institution grow in the next 10 years? In what ways will this growth affect the administrative data base?

○ Are changes anticipated in office automation, word processing, electronic mail, or other areas?

Define Hardware/Software Options. The third step in the institutional assessment phase is to define the *general* hardware and software options that are available. This phase is not meant to identify products or vendors but to identify generic options. Questions such as the following might be considered:

○ Does the institution currently have a computer system? Is it adequate for future needs? If so, do you want to continue to work with it or would you prefer to acquire new hardware?

○ Does the institution have a programming staff? If so, how large is it and what are its areas of competence? Can the staff adequately meet future programming needs?

○ For administrative operations, does the institution want an integrated comprehensive system or one consisting of individualized pieces?

○ What are the relative advantages and disadvantages of a large mainframe and a minicomputer in building an administrative system? How can microcomputers be incorporated?

○ Would it be best for your campus to build necessary software applications in-house, to hire a company for software development, or to buy a package "off-the-shelf?"

○ Will it be necessary to have word processing capability integrated into the administrative computer system?

○ Will the academic side of the institution share your computer resources? If so, what kind of academic usage is expected—student programming, faculty research, computer-assisted design/computer-assisted manufacturing (CAD/CAM), computer-assisted instruction?

○ Finally, how much can the institution afford to spend to acquire an administrative computer system or to improve the existing one? Importantly, how much money will be available each year to run the system?

Conduct Site Visits. Conducting site visits is not as much work as the previous three steps. After, or while, you are working on the preceding matters, take some time to visit neighboring institutions and businesses to see what they are doing in terms of data processing and word processing. Again, involve a broad spectrum of people in these visits. Rather than being focused on any particular administrative function or vendor product, site visits should be treated as opportunities to see what others are doing, to get ideas about new ways of doing things, and to discover how new technology is being put to use in the real world. These visits should help provide you with a view of the possibilities for administrative computing and with a sense of the direction in which technology is moving. This real-world insight coupled with digestion of the results from your deliberations on future needs and hardware/software options should help you set a practical course for future administrative computing developments on your campus.

Set Objectives. The final step in this first phase of computer system implementation is to define your institution's objectives for improving administrative computing. Frequently this also leads to the development of specifications for your future administrative computer system. These may be specifications for additional applications you will develop in-house or specifications to send out to consultants or vendors for bid. If you decide to go outside to acquire hardware and/or software, certain information should be included in the specifications:

○ Applications you are interested in automating;

○ The general type of system you seek—e.g., comprehensive, integrated package, or selected microcomputer-based processing;

○ Whether the institution is looking for an on-line system, batch processing, timesharing services, or other;

○ Major data elements you want stored;

○ Estimated system capacity needed;

○ Probable number of users on the system;

○ Criteria you will use to evaluate submitted proposals.

When you have completed the five steps in the institutional assessment phase, your campus will have arrived at a rather clear consensus. This assessment phase will take time, but it is a fundamental and essential step in the system selection process. If you do a thorough job in this phase, the remainder of the selection and implementation activities will go quickly and smoothly because you will have institution-wide understanding of and support for the objectives defined through the process.

The remainder of this article addresses issues related to (1) purchasing a new computer system from an outside vendor and (2) implementing the system. It is assumed that you will send your system specifications (sometimes

called an RFP) to a group of vendors and that you will ask that proposals be submitted. The primary focus in this article is on acquisition of a new system.

System Selection

Define Selection Process. The first step in the system selection phase is to define the process that will be used to make the selection decision. Among the questions to answer clearly are:

- Who participates in the evaluation of products?
- Who has input, who makes recommendations, and who makes the actual decision?
- How long is the evaluation and selection process expected to take?

Define Evaluation Criteria. The person or group responsible for most of the work in the evaluation and selection process must define and develop a consensus about the criteria to be used in judging systems. The starting point and guiding force in these deliberations should be the institutional objectives and system specifications that were established toward the end of the institutional assessment phase. The evaluation and selection group must come to some agreement on what, in practical terms, the objectives and specifications mean. The result should be a set of working criteria that will enable you to assess the strengths and weaknesses of each proposal relative to your campus's needs. Regarding each prospective system, you should ask the following questions:

- What are the start-up costs, including acquisition, conversion, training, and parallel operations?
- What are the on-going costs, including system expansion, hardware and software maintenance, software enhancements, personnel, and recurrent staff training?
- At how many other institutions is the same system running? Is it fully installed and operational? How similar are those sites to yours? Are the people there happy with the system and with vendor support?
- Does the vendor have a formal training program for both system management and application software?
- Does the vendor provide sole-source support for hardware and software? Or are there separate sources to be negotiated with?
- How much experience do the vendor company and its staff members have in the higher education field?
- What is the quality of technical and user documentation?
- Is there an active users' group?
- What is the financial situation of the vendor?

Evaluation—Round 1. The purpose of the first round of evaluation is to narrow the field of serious contenders. The evaluation and selection group should review all submitted vendor proposals and, using the agreed-upon working criteria for evaluation, eliminate proposals that clearly do not meet your campus's need. Your goal should be to choose perhaps two or three proposals to evaluate in depth.

Arrange Vendor Demonstrations. When you have identified the two or three systems that seem to meet your campus's administrative computing needs, invite the companies to your campus to demonstrate their systems. You may want to ask representatives from each administrative area to attend the demonstrations, or you may want to limit the audience to those in the evaluation and selection group.

The most satisfying demonstrations, from the institution's perspective, are those in which each vendor is allotted most of a day, with a break for lunch. This allows the vendor to present an overall picture of the system and to show the major functions without rushing. Likewise, it allows the campus staff to absorb what is being shown and to ask questions about important areas.

These demonstrations should be scheduled within, for example, a two-week period so that campus personnel will be able to recall information and make comparisons among systems. You should ask those who view these demonstrations to complete a predesigned rating sheet after every vendor presentation. This will allow you to collect fresh opinions and perceptions about each system and also provides a basis for later comparison.

Contact Current Customers. Each vendor should supply you with a complete list of current customers; if it is not provided, ask for it. Then call or visit, if possible, one or more campuses from each customer list. You might ask various administrative users to contact their counterparts at the other institutions. The evaluation and selection group should strive to determine how the system works in a real setting. Among things to look for are the following:

- Do the users like the system?
- Does the system meet the campus's administrative needs?
- How flexible is the software?
- How smoothly did training and installation go? If problems occurred in data conversion, was the vendor responsive to the problems?
- Is system response-time adequate?
- How reliable is the hardware?

In addition, ask what other systems the institution considered during its selection process and why the particular choice was made. Ask if the same choice would be made again.

As in the vendor demonstrations, personnel from your campus who call or visit other campuses should complete a rating sheet for each contact. These rating sheets should be collected by the evaluation and selection group for later use.

Evaluation—Round 2. When all this information-gathering is complete, the evaluation and selection group should meet again to narrow the field further. Certain systems will almost naturally fall out of the running and others will continue as strong possibilities. (It may be relatively easy for the group to decide on the one system that will best meet your campus's unique needs. If this round of evaluation leads you to a single choice, formalize your recommendation and proceed into contract negotiations.)

Visit Corporate Offices. If there are still two systems in the running, visit the corporate offices of each contender. At this stage of the process, you will probably have a few very precise questions that need to be answered about each of the contenders. The most effective way to get these answers (and to gain more knowledge about the vendors) is to arrange a visit by two or three of your group to the corporate offices of each vendor. You should be able to meet technical staff, see the training facilities, and confirm your sense of how the vendor works and how it handles its customers. These visits should provide you with information you need to complete your systems evaluation and to make your final recommendation.

Make Decision. The evaluation and selection group should make a well-documented recommendation that should be available to the campus public. The identified decision maker(s) should make the final decision.

Once the decision is made, your institution and the vendor enter into a period of contract negotiations. This will probably proceed according to state or governing board guidelines or established institutional policy. After the contract has been signed by all parties, the system implementation phase begins.

Implementation

Assign Responsibility. The first step in implementing a new administrative computer system is to assign one person the responsibility for coordinating the implementation process. This is especially important if you are installing a software package that serves multiple administrative areas. The coordinator's responsibilities include:

- Serving as primary contact between institution and vendor(s);
- Encouraging active user-department involvement;
- Insuring that implementation activities are completed on schedule;
- Understanding how hardware and software work;
- Facilitating communication among user offices and between user offices and the computer center;
- Helping to identify tasks required for conversion and implementation;
- Insuring that the institution gets the greatest possible benefit from the new administrative computer system.

All administrative staff should know who the coordinator is and should be familiar with the coordinator's responsibilities. Also, user offices should understand their own responsibilities in implementing the new system. At minimum, user responsibilities include:

- Participating in training activities;
- Assisting in the conversion from the old system to the new;
- Maintaining a commitment to make the new system work.

The executive management of an institution has a special responsibility during implementation. They must show, through their words and their actions, that they wholeheartedly support the new system and the implementation process. They should be aware of the programs, acknowledge the efforts, and applaud the achievements of the staff doing the day-to-day work to get the new system running.

Plan Implementation Schedule. A second step in the implementation process is developing a formal implementation plan. Do not try to implement the entire system at once; a gradual approach is advisable. Successes in the early stages of implementation will go a long way toward building the credibility of a new system. Based on the functions that are to be computerized in the new system, the institution's objectives, and the academic calendar, a plan should identify:

- When system delivery is expected;
- The sequence in which different offices will be brought onto the new system;
- When each office will begin
  - -preparation activities,
  - -training activities,
  - -data-conversion activities,
  - -forms-design activities,
  - -live operations;
- When major management reports will be generated by the new system;
- What operations will be temporarily processed "in parallel" (i.e., run on both the old and the new systems simultaneously) and when the new system will stand on its own.

It is best to develop this plan in conjunction with the administrative offices that will be involved. If they help to plan, they will better understand the tasks that need to be completed during implementation and how their particular office fits into the overall system. Publicizing the entire implementation plan widely throughout the administration will also be helpful. Cooperation and support are much easier to garner when people are aware of what is going on.

Design Training Program. Once everyone knows what is going to happen and when it is going to happen, a training program must be designed to instruct personnel in the use of the new computer system. Training for systems staff should be provided by the vendor. Initial training of administrative users should be provided by the vendor but must be carefully overseen at all stages by the implementation coordinator. The vendor should provide comprehensive information on the operations of all applications. In consultation with the implementation coordinator, institutional administrators must decide specifically how each application will be used on the campus.

Administrative-user training is a three-step process:

- General orientation;
- Application overview;
- Hands-on practice.

In the general orientation, new administrative users are introduced by the vendor to the new system as a whole, to the major features of the system, and to the basic concept on which the software is built.

In the application overview, the vendor helps new users to focus on their particular area of administrative responsibility and on the

application software that performs tasks in that area. This training by the vendor should include a comprehensive explanation and demonstration of the software as well as opportunities for new users to test their understanding by actually using the software to complete specially designed training exercises.

In the hands-on practice, new users continue working with the software, experimenting with different features and exploring how to handle situations that may be especially important to their campus. This training step is carried out by institutional personnel. New users will become comfortable with the software and competent in its use and will be readied for actual operations.

The vendor should provide formal and effective general orientation and application overview training for your administrative users. The campus-based training program can concentrate on the practice, or hands-on, aspect of user training. This step is very important and cannot be taken for granted. New users need to be encouraged by the implementation coordinator to find time to practice on the new system and, later, to make decisions about how the new system is going to be made operational in their office and on the campus. The importance of the implementation coordinator's role here cannot be overemphasized.

Make Data Conversions. If you are moving from one computer system to another, you need to make decisions regarding the data that will be converted from the old system to the new one. Among the questions to be answered are the following:

- Are good data available for conversion?
- Which data need to be converted?
- When are the converted data needed?
- Is the conversion to be done by hand or through a program?
- Who is to write the conversion program(s)?

If you are converting data programmatically and you have technical staff on your campus, you might consider doing the conversion yourself. If you cannot use on-campus technical resources, the vendor will usually perform this task and bill you accordingly.

Create Procedures Manuals. When personnel in each administrative office determine how they are going to operate with the new system, a procedures manual should be written for the office. This manual should:

- Identify the tasks performed in the office;
- Describe how each task is carried out—manual processes and computer processes;
- Identify who (what position) is responsible for which tasks;
- Identify the data, information, and reports that are produced by the office and distributed to others.

The procedures manual should state what needs to be done in an office and how to do it. It should be kept up-to-date as procedures and policies are modified. The manual will be invaluable as staff changes occur over time, and will insure that work will continue if someone is sick or has an accident. Also, it can be used as a training tool when new staff are hired.

Establish Users' Group. As offices become operational, it is a good idea to establish an on-campus users' group. The users' group should consist of a representative from each administrative area using the new system, one or two representatives from the computer center, and the implementation coordinator. The primary purpose of this group is communication. With good communication among user offices and between users and the computer center, the new system will fulfill its potential and it will become an integral tool in the development and ongoing support of an effective and efficient administrative operation on the campus. ♦

Drawing by Chas. Addams; © 1984, The New Yorker Magazine, Inc.

business officer

Newsmagazine of the National Association of College and University Business Officers

♦

Editor
Jeffrey M. Sheppard
Portfolio Editor
David W. Jacobson
Contributing Staff
Darryl Brown, Stephen Foster, Janet Jackley, Maurese Owens Anne Price, Michael Weaver
Executive Vice President
D. F. Finn

NACUBO Board of Directors

President: Herman D. Johnson, *University of California, San Diego*

Vice President: Caspa L. Harris, Jr., *Howard University*

Secretary: Frederick R. Ford, *Purdue University*

Treasurer: Fred S. Vorsanger, *University of Arkansas*

Robert L. Carr, *Office of the Council of State College and University Presidents* (Washington State); Donald Cole, *Western Washington University;* Joe F. Evans, *Washington University;* Donald Hume, *New York University;* Raymond M. Krehel, *Colgate University;* Carroll J. Lee, *University of New Mexico;* Roger D. Lowe, *Wichita State University;* Warren R. Madden, *Iowa State University;* George B. May, *Amherst College;* Charles C. Teamer, *Dillard University;* John L. Temple, *Emory University.*

♦

Business Officer (ISSN 0147-877X) is published monthly by NACUBO, One Dupont Circle, Suite 510, Washington, DC 20036, telephone 202-861-2500. Second-class postage paid at Washington, DC. Of annual membership dues, $30 is for a subscription to *Business Officer.*

© 1982. All material except that appearing in *Portfolio, Columns,* or otherwise restricted may be reproduced for internal distribution if proper credit is given. Unauthorized use is strictly prohibited.

BEST COPY AVAILABLE